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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,334	01/09/2002	Onno Dirk Oenema	98-IKU-837	3239

7590 11/22/2005

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Cleveland, OH 44114-2584

EXAMINER
ROBINSON, MARK A

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 11/22/2005

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/831,334
Filing Date: January 09, 2002
Appellant(s): OENEMA ET AL.

Roger A. Johnston
For Appellant

EXAMINER'S ANSWER

MAILED

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GROUP 2800

This is in response to the appeal brief filed 8/5/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The amendment after final rejection filed on 1/7/05 has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

US 5,990,999 Huizenga

US 6,247,823 Fuerst

Admitted prior art set forth in applicant's specification, p. 6-7.

Also relied upon in this Examiner's Answer are the following websites listing mechanical properties for the materials used in the references listed above:

Goodfellow websites -
http://www.goodfellow.com/csp/active/gfMaterialInfo.csp?MATID=CU00&form=All
http://www.goodfellow.com/csp/active/STATIC/A/Brass .HTML
http://www.goodfellow.com/csp/active/gfMaterialInfo.csp?text=*P&MATID=ES34&material=1
http://www.goodfellow.com/csp/active/STATIC/E/Polyacrylonitrile-butadiene-styrene.HTML

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huizenga 5900999 in view of Fuerst 6247823.

Huizenga discloses a mirror assembly and method for making the same including a support(at 12), a mirror housing(11) including a single build up element(19) formed of non-conductive material with conductive strips molded therein, a mirror plate(13), and electromechanical means (shown in fig. 3) for adjusting the mirror plate relative to the housing. Note that Huizenga's conductive strips inherently provide increased strength and rigidity of the build up element.

Huizenga does not disclose electromechanical means for adjusting the housing relative to the support, means for performing ancillary function, or an electronics unit received in the hollow for controlling energization of the mirror adjustment. However, each of these features is known in the prior art--the means for adjusting the housing relative to the support and the means for performing ancillary function as taught on pages 6-7 of the instant specification and the electronic PCB in the hollow of a build up element as shown in fig. 1 of Fuerst. It would have been obvious to the ordinarily

skilled artisan at the time of invention to include known means for adjusting the housing relative to the support and for performing ancillary function in order to allow for folding of the mirror unit when parking or storing the vehicle and to provide the mirror with an auxiliary function such as a turn signal, mirror heater, etc. Further, it would have been obvious to include an electronics unit which includes a PCB in the hollow of a mirror build-up element as taught by Fuerst in Huizenga's system in order protect the electronics unit, which provides for the various ancillary functions (heating, etc.), from deleterious environmental effects as taught by Fuerst (see the abstract).

(10) Response to Argument

Appellant has argued that the electrical conductors shown by Huizenga do not necessarily increase the strength and rigidity of the build-up element(19), noting that "thin metal conductors, such as wires, are often flexible and not rigid."

In response, it should first be noted that the claimed invention does not require the strength and rigidity of the build-up element to be increased by any particular amount, nor to be increased in any particular manner or direction. Secondly, it should be noted that the claimed invention uses

metal conductors to provide a **plastic** build-up element with an increase in rigidity and strength.

Huizenga shows electrical conductors(68,70,72,74) in figs. 4 and 7-15. These conductors are molded into the build-up element (e.g. col. 9 lines 5-12). The conductors are taught to be made of any of a number of materials, including the **metals** brass and copper (col. 9 lines 13-42). Further, the build-up element(19) in which the conductors are molded is taught to be made of a **plastic** material such as ABS or PBT.

Brass and copper, taught by Huizenga to be useable as the conductors, naturally have a *much* higher tensile strength than do ABS and PBT, taught by Huizenga to be useable for the build-up element(19). See the attached material property documents which list the following values for tensile strength:

Material	Tensile Strength		
Brass	300-700 MPa	}	conductor materials
Copper	224-314 MPa	}	
ABS	41-45 MPa	}	build-up element materials
PBT	50 MPa	}	

Thus, when brass or copper conductors are molded into the ABS or PBT build-up element, as is taught by Huizenga, these conductors, which *inherently* have a much higher strength than the plastic of the build-up element, will *inherently* provide the build-up element with at least some measure of increased rigidity and strength, along at least one dimension (e.g. the longitudinal dimension of the conductors).

Appellant has further argued that in Huizenga, the material for the build-up element(19) "may be made thinner to accommodate the thickness of the electrical leads 74," presumably referring to what is shown in cross-section in figs. 8-9, "thereby potentially reducing the strength" of the build-up element.

In response, it is seen that removing a thin portion of relatively weak ABS or PBT and replacing it with a similarly-sized portion of stronger brass or copper conductor 74 as shown by Huizenga would only increase the strength and rigidity of the build-up element(19).

Appellant further alleges that Huizenga teaches in col. 7 lines 38-55 the build-up element to actually strengthen the conductors, and not vice-versa.

However, the examiner cannot find support for this allegation in this section of the reference.

Appellant further argues that "the mere possibility of increased strength and rigidity is not enough to support the rejection...based on inherency."

It is the examiner's position that molding a relatively strong material into a much weaker one as shown by Huizenga will *necessarily* provide at least some measure of increased strength and rigidity, in at least one dimension. That such a property or benefit is not the focus of Huizenga's invention does not negate the fact that the property or benefit is still present in his device.

Appellant has also argued against the combination of Fuerst with Huizenga and has pointed out structural differences between the two references, arguing that such differences result in the references teaching away from their combination.

In response, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The reference to Fuerst is being relied upon merely for teaching an electronics unit or PCB (printed circuit board) in the build-up element of a rear-view mirror unit. It is not clear how the

teaching of protecting an electrical-function-controlling PCB in the build-up element of Fuerst teaches away from use of this arrangement with Huizenga's device. Accordingly, it is seen that this arrangement of Fuerst would be advantageous when used in Huizenga's device in order to protect the function-controlling electronic unit from deleterious environmental effects as was set forth in the rejection.

Appellant has made similar arguments in regard to the method claim. In response, the examiner's arguments are repeated.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Mark Robinson

MARK A. ROBINSON
PRIMARY EXAMINER

Conferees:

Drew Dunn

for Olik Chaudhuri

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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Polyacrylonitrile-butadiene-styrene (ABS) - Material Information

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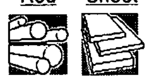

General Description:

Common Brand names : Cycolac Lustran Novodur Ronfalin

General Description : An amorphous, off-white/greyish engineering thermoplastic that is relatively hard and reasonably tough (maintained at low temperatures). It is manufactured in a wide range of grades tailored to individual end-uses which can vary appreciably in copolymer ratios. Generally they are easily processed and bonded but have poor solvent and fatigue resistance and poor UV resistance (unless stabilised or protected).

Applications include cabinets and casings, baths, shower trays, pipes, boat hulls and vehicle components.

Chemical Resistance

Acids - concentrated	Good-Poor
Acids - dilute	Good
Alcohols	Good-Poor
Alkalis	Good

Aromatic hydrocarbons	Poor
Greases and Oils	Good
Halogenated Hydrocarbons	Poor
Halogens	Poor
Ketones	Poor

Electrical Properties

Dielectric constant @1MHz	3.2 - 3.3
Dielectric strength (kV mm^{-1})	20-25
Dissipation factor @ 1MHz	0.02
Volume resistivity (Ohmcm)	$>10^{15}$

Mechanical Properties

Coefficient of friction	0.5
Elongation at break (%)	45
Hardness - Rockwell	R100-110
Izod impact strength (J m^{-1})	200-400
Poisson's ratio	0.35
Tensile modulus (GPa)	2.1-2.4
Tensile strength (MPa)	41-45

Physical Properties

Density (g cm^{-3})	1.05
Flammability	HB @ 1.5mm
Limiting oxygen index (%)	19
Radiation resistance	Fair
Resistance to Ultra-violet	Poor
Water absorption - over 24 hours (%)	0.3-0.7

Thermal Properties

Coefficient of thermal expansion ($x10^{-6}$ K^{-1})	80
Heat-deflection temperature - 0.45MPa (C)	98
Heat-deflection temperature - 1.8MPa (C)	89
Thermal conductivity @23C (W m^{-1} K^{-1})	0.17
Upper working temperature (C)	70-100

Properties for Polyacrylonitrile-butadiene-styrene Film

Property		Value
Permeability to Carbon Dioxide @25C	$x10^{-13}$ cm^3. cm cm^{-2} s^{-1} Pa^{-1}	1.5
Permeability to Oxygen @25C	$x10^{-13}$ cm^3. cm cm^{-2} s^{-1} Pa^{-1}	0.5

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Polybutylene terephthalate (PBT) - Material Information

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Film Granule Monofilament Rod Sheet

General Description:

Common Brand names : Celanex Orgater Valox

General Description : A semi-crystalline, white or off-white polyester similar in both composition and properties to polyethyleneterephthalate (PET). It has somewhat lower strength and stiffness than PET, is a little softer but has higher impact strength and very similar chemical resistance. As it crystallises more rapidly than PET, it tends to be preferred for industrial scale moulding.

Applications include electrical and automotive components (including "under-the-hood") and power tool casings.

Chemical Resistance

Acids - concentrated	Good-Poor
Acids - dilute	Good
Alcohols	Good
Alkalis	Fair
Aromatic hydrocarbons	Good
Greases and Oils	Good
Halogenated Hydrocarbons	Good-Poor
Halogens	Poor
Ketones	Good-Poor

Electrical Properties	
Dielectric constant @1kHz	3.2
Dielectric strength (kV mm^{-1})	20
Dissipation factor @ 1kHz	0.002
Volume resistivity (Ohmcm)	10^{15}

Mechanical Properties	
Elongation at break (%)	250
Hardness - Rockwell	M70
Izod impact strength (J m^{-1})	60
Tensile modulus (GPa)	2
Tensile strength (MPa)	50

Physical Properties	
Density (g cm^{-3})	1.31
Flammability	HB
Limiting oxygen index (%)	25
Radiation resistance	Good
Resistance to Ultra-violet	Fair?
Water absorption - over 24 hours (%)	0.1

Thermal Properties	
Heat-deflection temperature - 0.45MPa (C)	150
Heat-deflection temperature - 1.8MPa (C)	60
Specific heat (J K^{-1} kg^{-1})	1200-2300
Upper working temperature (C)	120-?

Properties for Polybutylene terephthalate Film

Property		Value
Permeability to Hydrogen @25C	x10^{-13} cm^3. cm cm^{-2} s^{-1} Pa^{-1}	1.5
Permeability to Nitrogen @25C	x10^{-13} cm^3. cm cm^{-2} s^{-1} Pa^{-1}	0.004
Permeability to Oxygen @25C	x10^{-13} cm^3. cm cm^{-2} s^{-1} Pa^{-1}	0.2
Permeability to Water @38C	x10^{-13} cm^3. cm cm^{-2} s^{-1} Pa^{-1}	700

Properties for Polybutylene terephthalate Monofilament

Property		Value
Density	g cm^{-3}	1.31
Extension to break	%	26
Shrinkage @100C	%	3
Tensile strength	GPa	0.5

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Copper (Cu) - Material Information

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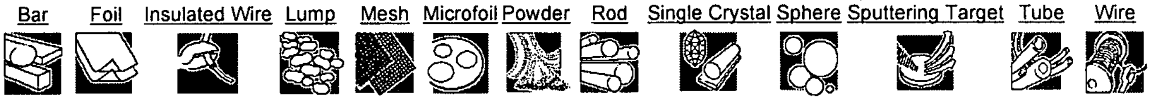
Bar Foil Insulated Wire Lump Mesh Microfoil Powder Rod Single Crystal Sphere Sputtering Target Tube Wire



General Description:

Known to ancient civilizations.

Copper is a reddish colored metal which is malleable and ductile. It has excellent thermal and electrical conductivities and good corrosion resistance. It is found in sulfide ores and as carbonate, arsenide and chloride (abundance in the Earth's crust is 50 ppm). Extraction of the metal involves roasting the ore to produce the oxide, followed by reduction and purification by electrolysis. The element is inert to non-oxidising acids but reacts with oxidising agents. In air, it will weather to produce the characteristic green patina of the carbonate. Copper will combine with oxygen on heating to produce CuO at red heat, and Cu_2O at elevated temperatures.

Pure copper has an electrical conductivity second only to that of silver and hence its main application is in the electrical industry. Copper is also the basis of many important alloys (e.g. brass, bronze and aluminum bronze) and has been traditionally considered to be one of the coinage metals, along with silver and gold, but being more common, is the least valued. It is one of the first metals ever to have been worked by man and is thought to have been mined for more than 5000 years.

Atomic Properties

Atomic number	29	
Atomic radius - Goldschmidt (nm)	0.128	
Atomic weight (amu)	63.546	
Crystal structure	Face centred cubic	
Electronic structure	Ar $3d^{10}$ $4s^{1}$	
Ionization potential	No.	eV
	1	7.73
	2	20.29

	3	36.8
	4	55.2
	5	79.9
	6	103
Natural isotope distribution	Mass No.	%
	63	69.2
	65	30.8
Photo-electric work function (eV)	4.5	
Thermal neutron absorption cross-section (Barns)	3.8	
Valences shown	1, 2	

Electrical Properties

Temperature coefficient @0-100C (K^{-1})	0.0043
Electrical resistivity @20C (µOhmcm)	1.69
Thermal emf against Pt (cold 0C - hot 100C) (mV)	+0.76

Mechanical Properties

Material condition	Soft	Hard	Polycrystalline
Bulk modulus (GPa)			137.8
Hardness - Vickers	49	87	
Izod toughness (J m^{-1})	58	68	
Poisson's ratio			0.343
Tensile modulus (GPa)			129.8
Tensile strength (MPa)	224	314	
Yield strength (MPa)	54	270	

Physical Properties

Boiling point (C)	2567
Density @20C (g cm^{-3})	8.96
Melting point (C)	1083

Thermal Properties

Coefficient of thermal expansion @0-100C ($x10^{-6}$ K^{-1})	17.0
Latent heat of evaporation (J g^{-1})	4796
Latent heat of fusion (J g^{-1})	205
Specific heat @25C (J K^{-1} kg^{-1})	385
Thermal conductivity @0-100C (W m^{-1} K^{-1})	401

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Brass - Material Information

Cu70/Zn30

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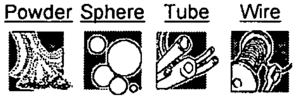
Powder Sphere Tube Wire



General Description:

Common Brand names : Boltomet 570® Cartridge Brass IMI 276® MS 72

Electrical Properties

Temperature coefficient (K^{-1})	0.0012-0.0016
Electrical resistivity (μOhmcm)	6.2-7.8

Mechanical Properties

Elongation at break (%)	<65
Hardness - Brinell	65-160
Izod impact strength (J m^{-1})	50-90
Modulus of elasticity (GPa)	100-115
Shear strength (MPa)	200-400
Tensile strength (MPa)	300-700

Physical Properties

Density (g cm^{-3})	8.55
Melting point (C)	910-965

Thermal Properties

Coefficient of thermal expansion @20-100C ($x10^{-6}$ K^{-1})	19.0-20.0
Thermal conductivity @23C (W m^{-1} K^{-1})	109-121

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